

62 The product according to claim 2, wherein the crosslinking is performed in chlorinated solvent using, as a crosslinking agent, 1,4-dichloromethyl 2,5 dimethylbenzene and  $TiCl_4$ .

#### REMARKS

Claims 27-47 are pending and stand ready for further action on the merits. Claims 28 and 30 have been amended to more particularly point out and distinctly claim what Applicants regard as the invention. No new matter has been added by way of the above-amendment.

#### Election/Restriction Requirement

In the outstanding Office Action, the Examiner acknowledges Applicants' election of: (1) SEBS as the polymer species; and (2) dichloroethane as the chlorinated solvent species. The Examiner has indicated that claims 27, 28, 32 and 33 are deemed to read on the elected species and that claims 29-31 and 34-47 have been withdrawn from further consideration as being drawn to non-elected subject matter.

Applicants respectfully submit that the Examiner appears to have been confusing 1,4-dichloromethyl-2,5 dimethylbenzene as being a "chlorinated solvent", when in fact, this is a

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crosslinking agent, see page 3, lines 13-20 of the specification. In view of the above amendment, which clarifies that 1,4-dichloromethyl-2,5-dimethylbenzene is the crosslinking agent and not the chlorinated solvent. Applicants respectfully submit that claims 30, 31, 34 and 35 also read on the elected species. Accordingly, Applicants respectfully request that the Examiner rejoins claims 30, 31, 34 and 35 with claims 27, 28, 32 and 33.

In a separate matter, it is unclear, based upon the Examiner's comments regarding the cited prior art, whether the Examiner has withdrawn the election of species requirement. For example, on page 4 of the outstanding Office Action, the Examiner states:

"The reference discloses a macroreticular (col. 5, lines 31, 39-40 and 49) crosslinked polystyrene polymer (col. 8, line 5), which polymer has an affinity for organic solvents (col. 9, line 53); and this is all that is required by claims 27 and 28."

Thus, it appears that the Examiner has conducted a search for polymer species other than the elected SEBS. Applicants respectfully request that the Examiner clarifies the scope of the present invention which has been considered.

**Issues Under 35 U.S.C. §132 and 35 U.S.C. §112, first paragraph**

The Examiner has objected to Applicant's amendment filed March 1, 1984 under 35 U.S.C. §112; and claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000.

See U.S. 3,979,287

stand rejected under 35 U.S.C. §112, first paragraph. Applicants respectfully traverse the objection and rejection.

The Examiner has taken the position that the replacement of the term "macroplegmatic" with the term "macroreticular" introduces new matter into the specification.

Applicants respectfully submit that the appearance of the term "macroplegmatic" in the specification arises from the transliteration, i.e., an insufficient translation, of the Greek term that corresponds to the English term "macroreticular". As a result, both terms are referring to the same structure.

Applicants respectfully submit that the term "macroreticular" is well known in the art as evidenced by Meitzner et al., see the abstract, and Vulliez-Sermet et al. U.S. 3,979,287, see column 3, line 16. Thus, the skilled artisan would come to the reasonable conclusion that the present inventors were in possession of the invention, as defined by the amended specification and claims, at the instant priority date.

Accordingly, Applicants respectfully request that the Examiner withdraws the rejection.

**Issues Under 35 U.S.C. §112, second paragraph**

Claims 28, 32 and 33 stand rejected under 35 U.S.C. §112, second paragraph. Applicants respectfully traverse the rejection.

The Examiner objects to the terms "ethylene" and "butadiene"

SEBS" as appearing in lines 1-4 of claim 28. In response, Applicants have amended claim 28 by replacing the phrase "tripolymer styrene, ethylene- and butadiene SEBS styrene, ethylene, butadiene, styrene;" with "SEBS,".

The Examiner has taken the position that claim 32 is indefinite for reciting that the chlorinated solvent is dichloroethane. Claim 32 depends from claim 30 which appears to exclude this solvent material by reciting the chlorinated solvent 1,4-dichloromethyl-2,5-dimethylbenzene and  $TiCl_4$ . In response, Applicants have amended claim 30 to more clearly recite that the 1,4-dichloromethyl-2,5-dimethylbenzene and  $TiCl_4$  are crosslinking agents not the chlorinated solvent.

The Examiner has taken the position that claim 33 is indefinite because it is not clear what is meant by the term "the product has Mc of 50,000". In response, Applicants respectfully submit that the term "Mc" is well known in the art to mean the critical entanglement molecular weight, i.e., the molecular weight between crosslinks of a polymer. Accordingly, claim 33 is not indefinite.

Applicants respectfully submit that the claims, as presently amended, particularly point out and distinctly claim what Applicants regard as the invention. Accordingly, withdrawal of the rejection is respectfully requested.

Issues Under 35 U.S.C. §102 and 103

The following prior art based rejections are pending: [I] claims 27 and 28 are rejected under 35 U.S.C. § 102(a) as being anticipated by Meitzner et al. (U.S. Patent 4,201,227); [II] claims 27 and 28 are rejected under 35 U.S.C. §102(b) as being anticipated by Vulliez-Sermet et al. (U.S. Patent 3,979,287); [III] claims 27, 28 and 32 are being rejected under 35 U.S.C. §102(e) as being anticipated by Rosenbaum (U.S. Patent 5,460,792); and [IV] claim 33 is rejected under 35 U.S.C. §103(a) as being obvious over Meitzner et al., Vulliez-Sermet et al. and Rosenbaum.

Applicants respectfully traverse each of the rejections.

*Meitzner et al.-*

Meitzner et al. teach a copolymer absorption process utilizing a macroreticulated crosslinked copolymer for adsorbing an organic material from a fluid. Meitzner et al. teach a process for forming the macroreticulated crosslinked copolymers by concurrent (at the same time) polymerization and crosslinking reactions.

Applicants respectfully submit that Meitzner et al. neither anticipate nor render obvious the presently claimed invention, since Meitzner et al. fail to teach or suggest that the macroreticular product is formed by crosslinking a preformed

polymer.

In describing the requirements for rejection of a claim by anticipation, the Manual of Patent Examining Procedure (Section 2131) states:

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference (ref. omitted). The identical invention must be shown in as complete detail as is contained in the... claim (ref. omitted). The elements must be arranged as required by the claim... (ref. omitted)."

Furthermore, in *Ex Parte Levy*, 17 USPQ2d (1461, 1462), the Board of Patent Appeals and Interferences has written:

"Moreover, it is incumbent upon the Examiner to identify wherein each and every facet of the claimed invention is disclosed in the applied reference (ref. omitted)."

Accordingly, Applicants respectfully indicate, every element in a claim must be found in the reference in order that the reference anticipate the claim. Meitzner et al. fail to teach or suggest that the macroreticular product is formed by crosslinking a *preformed* polymer. Therefore, the reference does not anticipate the claims.

Vulliez-Sermet et al.

Vulliez-Sermet et al. teach an absorption process utilizing particular absorbents to cross-linked polymers of ethylenically

unsaturated monomers. Vulliez-Sermet et al. primarily focus on the apparatus used in the process for recovering a dissolved component from liquid streams. Vulliez-Sermet et al. also teach a process for forming the macroreticulated crosslinked copolymers by concurrent (at the same time) polymerization and crosslinking reactions.

Vulliez-Sermet et al. do not anticipate the presently claimed macroreticular product, since Vulliez-Sermet et al. fail to teach or suggest that the macroreticular product is formed by crosslinking a *preformed* polymer. Therefore, the reference does not anticipate the claims.

*Rosenbaum -*

Rosenbaum teaches a process for the removal and destruction of halogenated organic and hydrocarbon compounds with porous carbonaceous materials. Rosenbaum discusses the use of crosslinked polystyrene polymers that are preferably macroreticular. Applicants respectfully submit that Rosenbaum neither anticipates nor renders the presently claimed invention obvious, since Rosenbaum fails to teach or suggest that the macroreticular product is formed by crosslinking a *preformed* polymer.

Combination of Meitzner et al., Vulliez-Sermet et al. and Rosenbaum -

In addition, the combination of Meitzner et al., Vulliez-Sermet et al. and Rosenbaum do not render the presently claimed invention obvious, since each of these references teach that the macroreticulated product is formed by concurrent polymerization and crosslinking reactions simultaneously, whereas the present macroreticular product is formed by crosslinking a *preformed* polymer.

In view of the foregoing, Applicants respectfully request that the Examiner withdraws each of the outstanding rejections.

Applicants respectfully submit that claim 33 is further distinguished from the cited references, since neither Meitzner et al., Vulliez-Sermet et al. nor Rosenbaum teach or suggest polymers having an Mc of 50,000. The inventive method leads to crosslinked polymers with an Mc of 50,000 which is much higher than the ones obtained in macroreticular polymers achieved by copolymerization routes. Mc is strongly related to the absorption capability of the crosslinked polymer.



CONCLUSION

In view of the above amendments and comments, Applicants respectfully submit that the claims are in condition for allowance. In the event the Examiner finds to the contrary, Applicants respectfully request that the Examiner enter this amendment into the official record, in order to place the claims in better form for appeal.

If the Examiner has any questions concerning this application, he is requested to contact Garth M. Dahlen, Ph.D., Reg. No. 43,575, at (703) 205-8000 in the Washington, D.C. area.

Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants hereby petition for an extension of one (1) month to October 20, 2001 (a Saturday), in which to file a reply to the Office Action. The required fee of \$55.00 is enclosed herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees

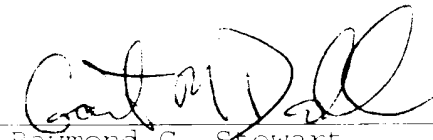
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required under 17 U.S.C. § 116 or under 17 U.S.C. § 117;  
particularly, extension of time fees.

Respectfully submitted,

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By



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Attachment: Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims have been amended as follows:

28. The product according to claim 27, wherein the polymer is polystyrene, [trimeric copolymer styrene, ethylene and butadiene] SEBS [(styrene, ethylene, butadiene, styrene)], or elastomeric SBR.

30. The product according to claim 27, wherein the cross-linking is performed in chlorinated solvent using, as a crosslinking agent, 1,4-dichloromethyl-2,5-dimethylbenzene and  $TiCl_4$ .